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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/542,439

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Jamil A Siddiqui

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EXAMINER

NGUYEN, COLETTE B

ART UNIT

PAPER NUMBER

1732

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/542,439	Applicant(s) SIDDIQUI ET AL.	
	Examiner COLETTE NGUYEN	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-14, 17-21, 23 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-14, 17-21, 23 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the application

Claims 1-3, 15, 16, 22, 24 and 26 are cancelled. Claims 4, 25 amended.

Claims 4-14, 17-21, 23, 25 are presented for examination

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. **Claims 4-14, 17-21, 23, 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Putzig et al. (US6,066,714 in view of Sublett (US5,017,680) and further in view of Gutmann ("New *Catalyst system for producing polyethylene terephthalate and their effects on light resistance*" 1989. translated from the German paper by Gutmann in the IDS, Gutmann is one of the inventor)

Regarding claim 4. Putzig (714) teaches esterification process of a dicarboxylic acid compound, having about 2 to 30 carbons, linear or branched, with solvent of ethylene glycol (Col 6, ln 10-50) to form an oligomer titanium complex catalyst in an amount of 0.1 to 100 ppmw. (Col6, line 18-68, col7, line 40-45). He does not teach the complex Na/Ti glycolate catalyst. Sublett discloses a catalyst complex with titanium alkoxides such as titanium glycolates (Col5, line 13) and organic salts of alkali metal or alkaline earth metals with preference of sodium and lithium and suitable salt such as lithium glycoxide and sodium glycoxide is cited. (Col5, line 18-35 and claim 4) wherein the metal content is from 1-70 ppm (Col 3, line 40-55) and Glycoxide is glycolate. The molar ratio of titanium: alkali metal is 1:25:1 to 100: 1. (Col.7, line 22 and claim 1 with

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metal:Ti 0.25: 1 or Ti: metal 4: 1). The catalyst has fast poly-condensation rated and reduces acetaldehyde generation and improves stability. Both Putzig and Sublett are silent about using polymeric titanium glycolate which is not soluble in ethylene glycol. Gutmann teaches a complex glycolate with $\text{Na}^+ [\text{Me}(\text{glycolate})]_{n+1}^-$ and the catalyst is not soluble in ethylene glycol and is gel like with improved catalytic action

The subject matter as a whole would have been obvious for one of ordinary skill in the art at the time of the invention to substitute the catalyst of Putzig with the complex glycolate catalyst of Sublett at a molar ratio of titanium: alkali metal is 1:25:1 to 100: 1. with modification taught by Gutmann by using a polymeric glycolate with the a ratio of 1:25:1 to 100: 1 so it can be insoluble in ethylene glycol (so it can be in gel form) to provide a good reaction accelerating effect in polymerization with improvement in production and strength.

Regarding claims 5, 6, 7. Putzig in view of Sublett and Gutmann disclose a process of claim 4, wherein R contains 4 to 15 carbons, such terephthalic acid, isophthalic acid, naphthalic acid, succinic acid, adipic acid, glutaric acid, oxalic acid and maleic acid. (col 6, ln 35-45)

1. Regarding claim 8. Putzig teaches esterification process using an alcohol and an oligomer having repeating units derived from an organic acid or ester such as carboxylic acid (Col 6, line 15).

2. Regarding claim 9, 10, 17. Putzig discloses the alcohol of the formula HO-R-OH or HO-[R-O]_n wherein R is an alkyl group having 1 to about 12 carbons such as

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ethylene glycol, butylene glycol, 1-methyl propylene glycol , pentylene glycol and combinations thereof. (Col6, ln 50-67).

3. Regarding Claims 11, 12, 13. Putzig specifically teaches a process temperature of 250-300C under a pressure of 0.001 to about 10 atmospheres, with a molar ratio of the alcohol to the carbonyl compound of 1:1 to 10:1. The teachings encompass the instant claims (Col 7, line 22-35).

4. Regarding Claim 14 and 19, 20 21 and 23. Putzig teaches catalyst amount of about 0.1-100ppm prior to addition to the reaction mixture or in situ i.e., in the process feed (Col 7, line 43). The claim is 1 to 15 ppm which are overlapped .

5. Regarding claim 18. Putzig teaches a ratio of 1:1 to about 3:1 of alcohol to dicarboxylic compound (Col 7, line33).

6. Regarding claim 25. Putzig in view of Sublett and Gutmann teach a process of esterification of claim 1 wherein the catalyst is a Na/Ti polymeric glycolate wherein Gutmann teaches that the mixing of the sodium glycolate with the polymeric titanium glycolate forms a clear solution which is interpreted as soluble. (page u of Gutmann)

Response to Arguments

7. Applicant's arguments filed 12/13/10 are carefully considered but are not persuasive and as the claims are now amended with a prior limitation that was eliminated and now reinstated however the claims remain rejected on new grounds as stated above as a prima facie of obviousness with combined arts as cited.

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8. The argument that Gutmann uses equimolar is correct. However Sublett who teaches the molar ratio of Ti: alkali metal is higher at 1:25:1 to 100: 1, therefore anyone in the art at the time of the invention would be motivated to try different ratio, especially a higher ratio as Sublett did point out with successful results. The normal desire of scientists and artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combinations of percentage. Patent can only be granted when the invention is novel and unobvious. The present invention is an improvement over the process of Putzig (714) with known catalyst of Sublett (680) in view of Guttman (New Catalyst System) with a polymeric titanium glycolate with a higher ratio than equimolar. Furthermore, the disclosure of Ti: Akali metal ratio of Sublett reads on ALL titanium glycolate, monomer or polymeric inclusively.

As for the argument of unexpected results of the catalyst with metal content of 1 to 70 ppm: First and foremost, the invention is a process not a catalyst composition. The unexpected result of the "yellow-blue factor" is not in the claim and this feature is an inherent characteristic that would be expected of the catalyst that Putzig in view of Sublett and Guttman teach. Furthermore, the metal content of 1-70ppm is disclosed by Sublett as discussed above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **US2005/0176986 and US5016944.**

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COLETTE NGUYEN whose telephone number is (571)270-5831. The examiner can normally be reached on Monday-Thursday, 10:00-4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Mayes can be reached on (571)-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/COLETTE NGUYEN/
Examiner, Art Unit 1793

February 28, 2011

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1732